

REMARKS/ARGUMENTS

Claims 1-9 and 11-21 stand in the present application, claims 1, 2, 4, 11 and 14 having been amended. Reconsideration and favorable action is respectfully requested in view of the above amendments and the following remarks.

The helpfulness and kindness of Examiner Michael Carter was appreciated during the telephonic interview on January 6, 2009. The above amendments and the following remarks were created in view of the discussion during the interview so that the present claims would more clearly patentably define over the art of record.

In the Office Action, the Examiner has rejected all of claims 1-4, 6-9 and 14-15 under 35 U.S.C. § 103(a) as being unpatentable over Kawagoe in view of Norihiro et al. ("Norihiro"); has rejected claims 17-19 and 21 in view of the previously cited art and Nagashima et al. ("Nagashima"); has rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Kawagoe in view of Norihiro and further in view of Komori et al. ("Komori"). In view of the above-described claim amendments, the Examiner's rejections of the claims are believed to have been overcome, as will be explained in greater detail below.

In Applicants' invention, the insulative region exists not only apart from the waveguide region but also apart from an external edge of the semiconductor stacked structure when viewed in plan, the external edge being remote from the striped waveguide region. As is described in the present specification at, *inter alia*, page 20, line 23 to page 21, line 16 and page 55, lines 5-14, the insulative region is provided apart from the waveguide region in consideration of the migration by heat diffusion of the atoms which are introduced by ion implantation. Typically, a semiconductor layer

changes its crystal structure by ion implantation and, therefore, it is not possibly cleaved in the desired direction when the elements are divided. However, in Applicants' invention the insulative region is provided apart from the external edge of the semiconductor stacked structure which is remote from the striped waveguide region so that there is a region into which ions are not implanted between elements adjacent to each other, and it can be cleaved in such region in the desired direction when dividing the elements.

Kawagoe does not describe or even suggest that the insulative region is provided for reducing the capacitance of the element. Indeed the Examiner admits that Kawagoe lacks this teaching. See Office Action at page 4.

Norihiro discloses converting the electrical resistance in the electric current narrowing layer into a higher resistance by ion implantation. However, Norihiro does not disclose or suggest that the insulative region is provided apart from the waveguide region and from an external edge of the semiconductor stacked structure, the external edge being remote from the striped waveguide region as now required by the present claims. In Norihiro, the high electrical resistance layer is region 8 which is indicated by broken lines in Figures 1 and 2. As is indicated in Figure 2(a), the region 8 is formed by providing striped providing striped SiO₂ film 11 on a part of contact layer 7 formed on p-InP clad layer 6, and implanting oxygen ions I using SiO₂ film 11 as a mask. Therefore, the region 8 is formed in all of the regions except those masked by striped SiO₂ film 11 when viewed in a plan.

As noted above, Applicants have amended independent claims 1, 2, 4, 11 and 14 to more clearly patentably define over the cited art. Thus, each independent claim has

been amended to require that the insulative region is remote from at least a portion of an external edge of the semiconductor stacked structure when viewed in plan and that the external edge is remote from the striped waveguide region. Since none of the cited art taken singly or in any combination teaches or suggests this feature of Applicants' invention, independent claims 1, 2, 4, 11 and 14 and their respective dependent claims are believed to patentably define thereover.

Therefore, in view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all of claims 1-9 and 11-21, standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

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